February 7, 1867.

Lieut.-General SABINE, President, in the Chair.

The following communication was read:—

"Account of Experiments on Torsion and Flexure for the Determination of Rigidities." By J. D. Everett, D.C.L., Assistant to the Professor of Mathematics in the University of Glasgow. Communicated by Sir William Thomson. Received January 25, 1867.

(Abstract.)

These experiments are a continuation of those described in a paper read February 22, 1866, with some modifications in the apparatus employed which render the comparison between torsion and flexure more direct. The amount of torsion or flexure produced by subjecting a cylindrical rod to a uniform couple throughout its whole length, is measured by means of two mirrors clamped to the rod near its ends, in which, by the aid of two telescopes, the reflexions of a scale overhead are seen and the displacements read off. One end of the rod is fixed, and a couple (of torsion and flexure alternately) is applied to the other end.

Three rods, of glass, brass, and steel, were experimented on, and the results obtained were as follows—M, n, and k denoting the resistances (in kilogrammes per square millimetre) to linear extension, shearing, and cubical compression respectively, and σ denoting the ratio of lateral contraction to longitudinal extension:—

	Glass.	Brass.	Steel.
Value of M.....	5851	10948	21793
„ n	2390	3729	8341
„ k	3533	57007	18756
„ σ	·229	·469	·310

February 14, 1867.

Lieut.-General SABINE, President, in the Chair.

The following communications were read:—

I. "On the Relation of Insolation to Atmospheric Humidity." By J. Park Harrison, M.A. Communicated by the President. Received January 30, 1867.

The occurrence of the maxima of insolation on days of great relative humidity which was noticed by Herr v. Schlagintweit in India*, receives

* Proceedings of the Royal Society, 1865, vol. xiv. p. 111.